

1.0 PURPOSE AND NEED

1.1 Introduction

The *National Environmental Policy Act of 1969* (NEPA) requires Federal agency officials to consider the environmental consequences of their proposed actions before decisions are made. In complying with NEPA, the United States (U.S.) Department of Energy (DOE), National Nuclear Security Administration (NNSA¹) follows the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] 1500–1508) and DOE’s own NEPA implementing procedures (10 CFR 1021). The purpose of an environmental assessment (EA) is to provide Federal decision makers with sufficient evidence and analysis to determine whether to prepare an environmental impact statement (EIS) or issue a Finding of No Significant Impact. This EA has been prepared to assess environmental consequences resulting from the future disposition of certain flood retention structures built in the wake of the Cerro Grande Fire within the boundaries of Los Alamos National Laboratory (LANL). LANL is one of the national security laboratories under the authority of the Under Secretary for Nuclear Security of the NNSA who serves as the Administrator for Nuclear Security and the head of the NNSA (50 USC Chapter 41, § 2402[b]).

The objectives of this EA are to (1) describe the underlying purpose and need for NNSA action; (2) describe the Proposed Action and identify and describe any reasonable alternatives that satisfy the purpose and need for NNSA action; (3) describe baseline environmental conditions at LANL; (4) analyze the potential indirect, direct, and cumulative effects to the existing environment from implementation of the Proposed Action, and (5) compare the effects of the Proposed Action with the No Action Alternative and other reasonable alternatives. For the purposes of compliance with NEPA, reasonable alternatives are identified as being those that meet NNSA’s purpose and need for action by virtue of timeliness, appropriate technology, and applicability to LANL.

The EA process also provides NNSA with environmental information that can be used in developing mitigative actions, if necessary, to minimize or avoid adverse effects to the quality of the human environment and natural ecosystems should NNSA decide to proceed with implementing the Proposed Action at LANL. Ultimately, the goal of NEPA and this EA is to aid NNSA officials in making decisions based on an understanding of environmental consequences and taking actions that protect, restore, and enhance the environment.

1.2 Background

LANL covers an area of 43 square miles (111 square kilometers) in north-central New Mexico (Figure 1) within a region characterized by forested areas with mountains, canyons, and valleys, as well as diverse cultures and ecosystems. The Federal government agency with administrative responsibility for LANL has evolved from the post-World War II Atomic Energy Commission, to the Energy Research and Development Administration, and finally to the DOE, NNSA. The University of California (UC) is the current LANL Management and Operating Contractor and has served in this capacity since the facility’s inception.

¹ The NNSA is a separately organized agency within DOE established by Congress in 2000 under Title 50 United States Code (USC) Chapter 41, Subchapter I, Section 2401.

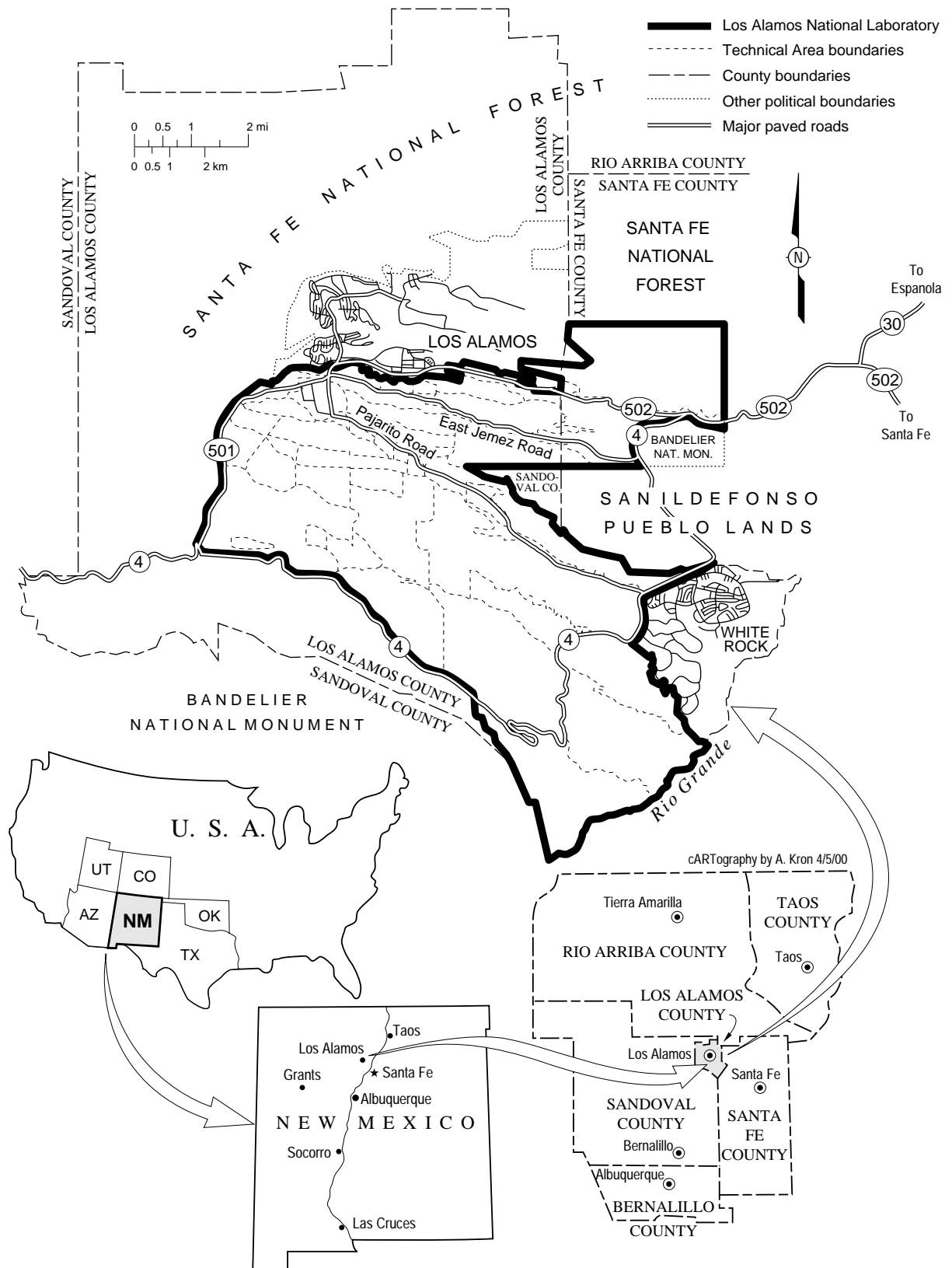


Figure 1. Location of Los Alamos National Laboratory.

In May 2000, a prescription burn, started on Federally administered land to the northwest of LANL, blew out of control and was designated as a wildfire. This wildfire, which became known as the Cerro Grande Fire, burned over 43,000 acres (ac) (17,200 hectares [ha]) of forest along the eastern flank of the Pajarito Plateau before it was extinguished. Approximately 7,650 ac (3,061 ha) within the boundaries of LANL were burned (Figure 2); nearly 10 percent (over 200 residential units occupied by over 400 families) of the Los Alamos townsite nearby was also burned. During the fire a number of emergency actions were undertaken by NNSA to suppress and extinguish the fire within LANL; immediately thereafter, NNSA undertook additional emergency actions to address the post-fire conditions.

The Cerro Grande Fire resulted in the creation of areas of hydrophobic soils, which are non-permeable soil areas created as a result of very high temperatures often associated with wildfires. These hydrophobic soils, combined with the loss of vegetation from steep canyon sides as a result of high- and moderate-severity fires, greatly affected the hydrologic functions of the watersheds in the LANL area. Surface runoff and soil erosion on the hillsides above LANL were greatly increased over pre-fire levels. The danger to LANL facilities and structures and homes located down-canyon from the burned area was magnified. Decisions to install storm water and flood control and erosion damage reduction features were made during the summer following the Cerro Grande Fire based on the perceived increased risk of damages to LANL and offsite facilities, structures, and homes. Computer modeling was used to estimate the risks using data collected on the amount of rain that fell and subsequent runoff generated in June, July, and August 2000. Storm water and flood damage control actions undertaken included the placement of sand bags, rocks, logs, straw bales and wattles, silt fences, and concrete barriers at numerous locations throughout LANL and the installation of trash racks at several locations. In addition, the U. S. Army Corps of Engineers (USACE) or LANL contractors constructed certain flood and sediment retention structures. These certain constructed flood and sediment retention structures and their watershed canyon locations are as follows:

1. A flood retention structure (FRS) constructed of roller compacted concrete (RCC) located in Pajarito Canyon.
2. A low-head weir, constructed of rectangular rock-filled wire cages (gabions), and associated detention basin in Los Alamos Canyon.
3. Reinforcements of several road crossings;
 - a. a land bridge along Anchor Ranch Road in Two-Mile Canyon,
 - b. State Road (SR) 501 embankment reinforcements in Two-Mile Canyon,
 - c. SR 501 reinforcements in Pajarito Canyon, and
 - d. SR 501 reinforcements in Water Canyon.
4. A steel diversion wall upstream of Technical Area (TA) 18 in Pajarito Canyon.
5. A downstream access road to the Los Alamos Reservoir and reinforcement of the reservoir embankment².

These structures are identified by number on the map in Figure 3.

² The disposition of reinforcements to the Los Alamos Reservoir and the access road will not be considered in this document because they are no longer under the administrative control of DOE, NNSA.

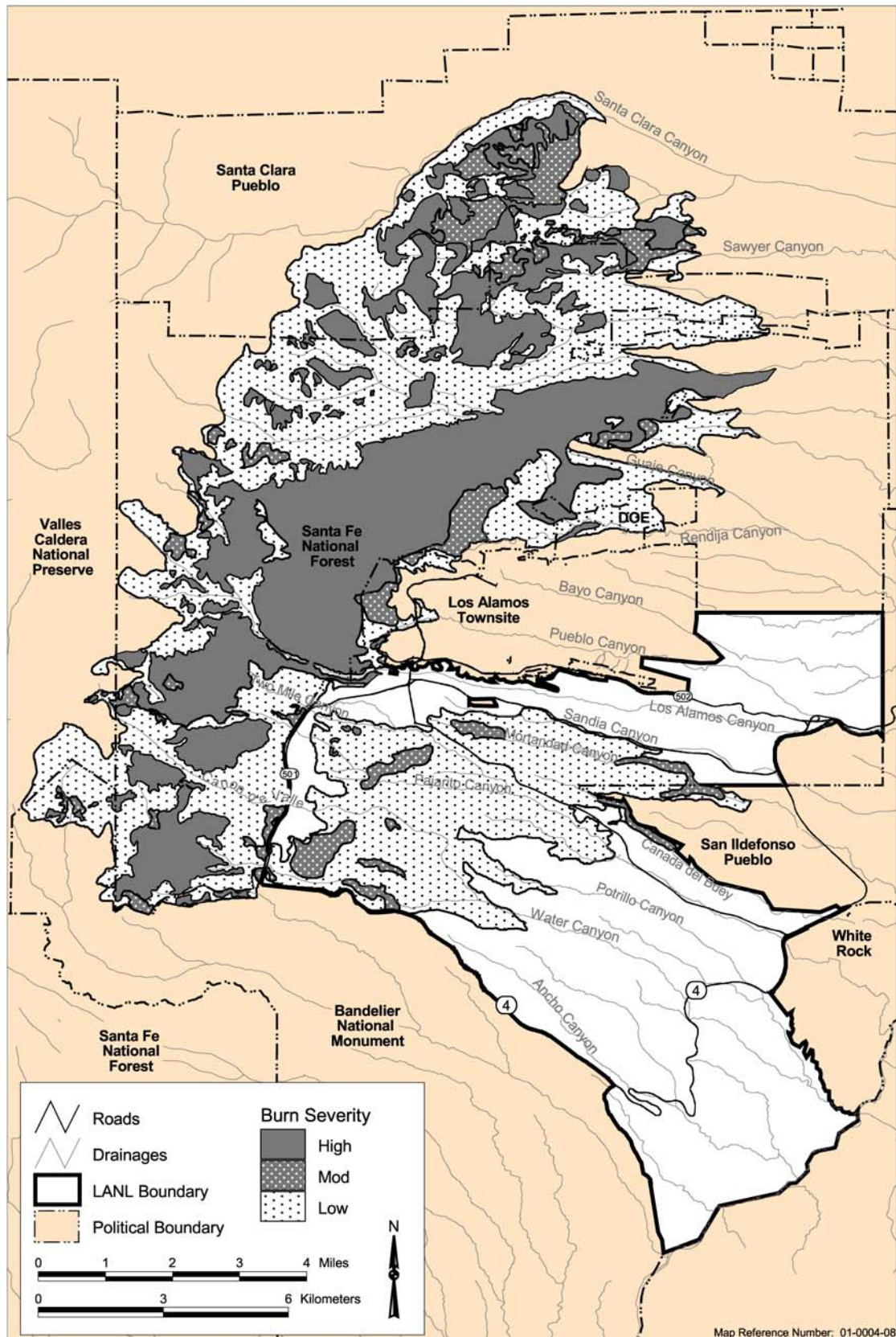


Figure 2. Extent and severity of the Cerro Grande Fire.

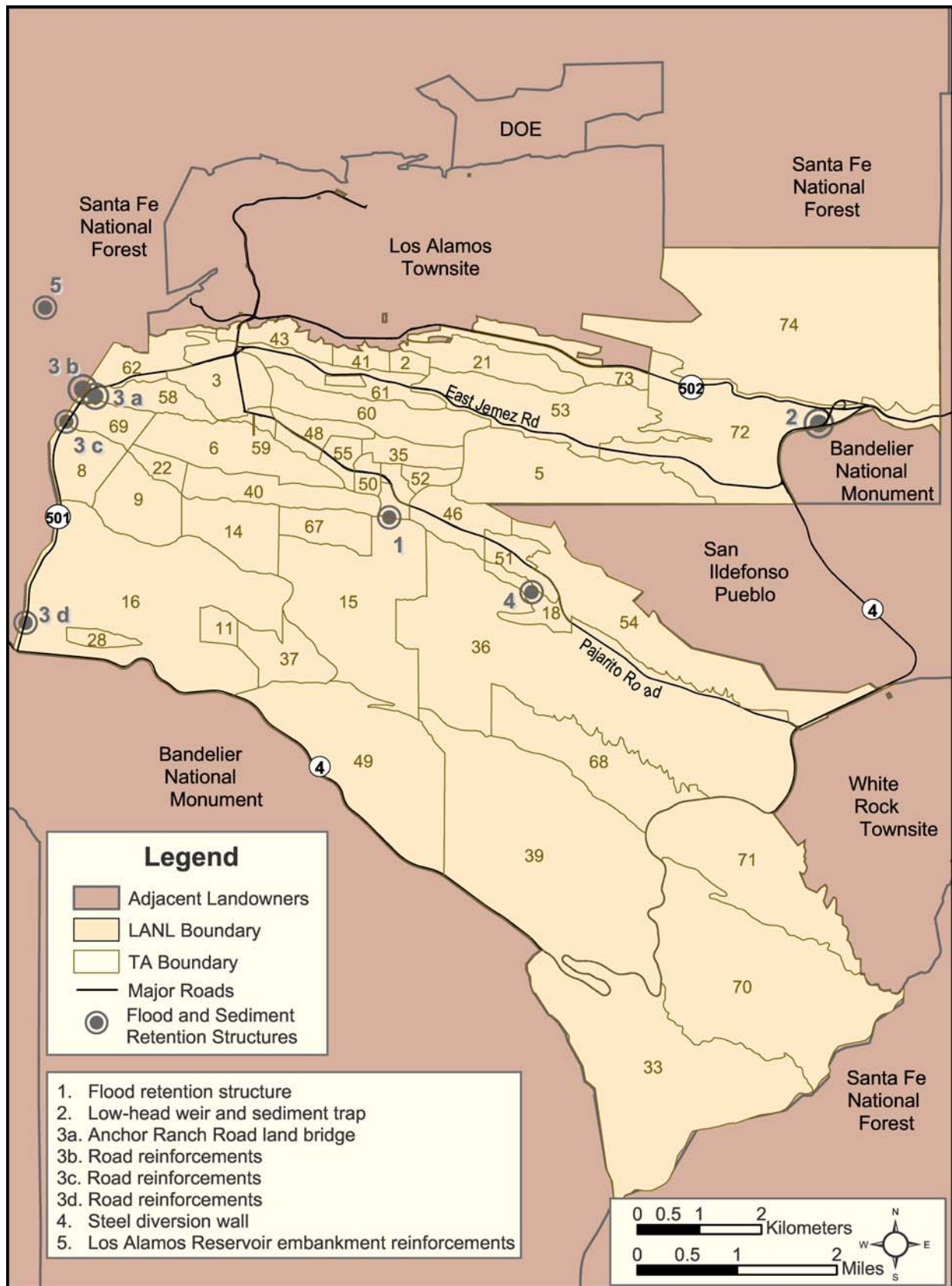


Figure 3. Location of certain flood and sediment retention structures.

The construction of these structures and other activities taken by NNSA in the wake of the Cerro Grande Fire, and their impacts, were analyzed in the *Special Environmental Analysis for the Department of Energy, National Nuclear Security Administration, Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE/SEA-03) (DOE 2000a) issued by NNSA in September 2000. This document can be found in DOE Reading Rooms in Albuquerque (at the Government Information Department, Zimmerman Library, University of New Mexico), and in Los Alamos (at the Community Relations Office located at 1619 Central Avenue).

Subsequent modeling performed in 2001 based on additional site information shows little recovery (Springer 2002). However, many of the areas that were reseeded as part of the recovery efforts have new vegetative cover due to favorable growing conditions experienced over the past year. It is expected that this vegetation coverage as it grows, matures, spreads, and is augmented by the germination and growth of native species, will begin to moderate the flood threat substantially over the next two to five years. A return to pre-fire conditions, or at least stabilization of the regional ecosystem, is expected to occur over the next three to eight years (2005 to 2010). The need for protection afforded by the placement of the flood and sediment retention structures will diminish accordingly.

While the impacts of constructing the identified flood and sediment retention structures were included in the analysis provided in DOE/SEA-03, the future disposition of these structures, some of which were designed to last for decades, was not considered. Mitigation measures listed in the DOE/SEA-03 include the following commitment: "Removal of the constructed flood control and erosion damage reduction features and the FRS when storm water flows have returned to pre-fire levels as denoted by vegetation recovery and annual modeling estimates will be considered. Additional NEPA and other regulatory compliance would be necessary when these actions become ripe for consideration. If structures are removed, re-contouring and reseedling of these areas with appropriate site-specific seed mixtures would be conducted until these construction sites have been completely revegetated." A mitigation action plan (MAP) (DOE 2000b) was prepared for the mitigation measures called out in the DOE/SEA-03. The first annual mitigation plan progress and status report for activities in 2001 was issued by NNSA in March 2002 (NNSA 2002). This annual report is publicly available in the previously identified DOE Reading Rooms.

1.3 Purpose and Need for Agency Action

NNSA constructed certain flood and sediment detention structures in the wake of the Cerro Grande Fire as part of its emergency response actions. These structures were built to address the changes in local watershed conditions that resulted from the fire, which are expected to return to a pre-fire status or become stabilized over the next three to eight years. The long-term disposition of these structures was not considered as a part of the decision to undertake the construction actions. NNSA needs to take actions regarding the disposition of these structures when they are no longer necessary to protect LANL facilities and the businesses and homes located downstream.

1.4 Scope of This EA

A sliding-scale approach (DOE 1993) is the basis for the analysis of potential environmental and socioeconomic effects in this EA. That is, certain aspects of the Proposed Action have a greater

potential for creating environmental effects than others; therefore, they are discussed in greater detail in this EA than those aspects of the action that have little potential for effect. For example, implementation of the Proposed Action could affect waste management resources at LANL. This EA, therefore, presents in-depth descriptive information on these resources to the fullest extent necessary for effects analysis. On the other hand, implementation of the Proposed Action would cause only a minor effect on socioeconomics at LANL. Thus, a minimal description of effects to this resource is presented.

When details about a Proposed Action are incomplete, as a few are for the Proposed Action evaluated in this EA (for example, the exact amount of waste potentially generated), a bounding analysis is often used to assess potential effects. When this approach is used, reasonable maximum assumptions are made regarding potential emissions, effluents, waste streams, and project activities (see Sections 2.0 and 4.0 of the EA). Such an analysis usually provides an overestimation of potential effects. In addition, any proposed future action(s) that exceeds the assumptions (the bounds of this effects analysis) would not be allowed until an additional NEPA review could be performed. A decision to proceed or not with the action(s) would then be made.

1.5 Public Involvement

NNSA provided written notification of this NEPA review to the State of New Mexico, the four Accord Pueblos (San Ildefonso, Santa Clara, Jemez, and Cochiti), Acoma Pueblo, the Mescalero Apache, and to over 30 stakeholders in the area on August 17, 2001. Upon release of this draft EA, NNSA will allow for a 21-day comment period. Where appropriate and to the extent practicable, concerns and comments received after the close of the comment period will be considered in the final EA.

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